PLANT SPECIES OF THE KINGS PARK BUSHLAND

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BACKGROUND

The Swan River Colony was founded in 1829 with John Septimus Roe, the first Surveyor General for the Colony, undertaking the planning for the city. The first indication that the area of Mount Eliza was to set aside for public purposes occured in 1831 when he refused permission for timber to be cut from Kings Park. Unfortunately permission was eventually given and in 1835 five tonnes of jarrah cut from the vicinity of Mount Eliza was the first export from the Colony. For several years after that timber continued to be cut. Today, the remains of saw pits can be seen throughout the bushland. In 1872 Malcolm Fraser, the Surveyor General, gazetted 175ha on Mount Eliza as a public park and in 1890 this was increased by John Forrest to its current size of 400ha with the first Board being appointed in 1895.

The founding fathers certainly intended Kings Park to remain as bushland when Sir Malcolm Fraser wrote in the Western Australian Year Book for 1902-1904, "Everything has been done to preserve the natural trees and flora, so that the wild flowers and shrubs are a delightful feature of the Park". John Forrest expressed a similar view when he said about Kings Park being a "sanctuary of bush land right in the heart of the City". This view has continued today both with the staff of the Park and the public of Western Australia.

HISTORY OF THE BUSHLAND SINCE SETTLEMENT

The bushland of Kings Park was altered considerably before it was gazetted as a public park. As mentioned above, most of the tall timber, especially Jarrah *(Eucalyptus marginata)* was cut for use in buildings - the Perth Town Hall and Government House were built with timber felled in Kings Park. The trunks of Blackboys, *Xanthorrhoea preissii*, were taken for kindling so only a few larger specimens of these remain. Banksia trees were felled for firewood and limestone was quarried from the scarp, especially from Quarry Point near Kennedy Fountain.

In the 1930's there was an attempt to beautify the bushland of Kings Park, so several non-native species were planted. These included *Eucalyptus cladocalyx* (Sugar Gum), *Melaleuca lanceolata* (Rottnest Teatree), *Brachychiton populneus* (Kurrajong) and *Agonis flexuosa* (Peppermint Tree). Planting continued with other species including the pink flowering forms of

Eucalyptus calophylla (Marri), *Eucalyptus erythrocorys* (Illyarrie), *Acacia* species and *Chamelaucium uncinatum* (Geraldton Wax). Many of these have now become established in the bushland.

More recently seeds of *Verticordia monadelpha* were scattered through the bushland and several plants of this species can be seen mainly along the road verges. *Hakea costata* seeds, scattered in an area of the Nature Trail, have established successfully and spread considerably.

Perennial Veldgrass (*Ehrharta calycina*) was first recorded at the Crawley end of the Park in 1924 by which time there was a dense growth of about 1/4 acre in extent. The grass was then hailed as a valuable fodder grass and encouraged as a saleable commodity. The flowering heads were collected and sold to the residents of Subiaco as horse feed. This has subsequently proven to be a very unpleasant introduction. Many experiments have been undertaken to eradicate it. Between 1949 and 1951 during the flowering season of veldgrass, the Board tried to control it by means of cattle grazing. This attempt appeared to be soundly based as cattle ate the grass, but unfortunately they also ate the native vegetation. Ungerminated seeds of Veldgrass were left, the litter and soil layers were broken up by the hooves of the animals, leaving areas for this and other weeds to invade. Recently the use of a selective herbicide has been very successful and large quantities of the grass have now disappeared. It is essential that follow up spraying continue to avoid any reinfestation.

For many decades King Park has been used as a "dumping" ground by the resident of Perth and nearby suburbs. As a result many weeds have been introduced. Freesias, Gladiolus and other cormous or bulbous plants are established in the bushland and reproduce very successfully often to the detriment of the native species.

Fires have been a problem in Kings Park with a few very extensive ones having been recorded, the last being in February 1989 when about 1/2 of the bushland was burnt. For several years in the 1930's it was the Board's policy to control burn designated areas of the Park at 4 year intervals, but in the last decade very little control burning has been undertaken. Certainly there has been no regular control burns.

The bushland is considerably altered from what it was at the time of settlement. Before settlement the vegetation would have been of tall Tuart (*Eucalyptus gomphocepha*), Jarrah (*Eucalyptus marginata*) and Marri (*Eucalyptus calophylla*) with an understorey of Banksia and Allocasuarina trees. Today the structure has changed so that Banksia and Sheoak predominate (Beard, 1967). The original ecosystem of a tall open forest of Tuart-Jarrah-Marri is probably collapsing and being replaced by a Banksia-Sheoak low open woodland which is typical of excessively drained sands of low nutrient status. This is a natural sequence but has probably been accelerated by disturbance.

GEOLOGY, GEOMORPHOLOGY AND SOILS

Kings Park was classified as being

within the Spearwood Dune System with soils of the Karrakatta Soil Association (Bettenay *et al.*, 1960). These were further classified into a yellow phase (a grey to brown surface passing into a bright yellow subsoil) and a grey phase (grey surface passing into a bleached light grey to white subsurface overlying a pale yellow subsoil).

The Karakatta Soil Association is believed to have been formed between 10,000 and 6,000 years ago (McArthur and Bettenay, 1960) from calcareous beach sand (aeolianite) containing 50–70% calcium carbonate. Much of the calcium carbonate has been leached to form secondary calcite layers at greater depths. This leaching led to podzolized sands with yellow to brownish yellow sands at depth.

Most of the Park is composed of medium sized sand particles with a large area of coarse sand towards the southern end. There are significant areas of fine sand and some areas of sandy loam horizons, both of which have greater water holding capacity than the coarse and medium sands. The loam horizons also has a greater nutrient retention (Bessell-Brown, 1990).

The sandy loam horizon was found to coincide with a more vigorous vegetation cover. The sand above the layer was wet suggesting a perched water table during some months of the year. No water table was found close to the surface (Bessell-Brown, 1990).

BUSHLAND STUDY

For this study the bushland of the Park was divided into 12 areas using major tracks, firebreaks and roads (Figure 1). This survey commenced with the collecting of plants for illustration and inclusion in The Bushland Plants of Kings Park. All the species recorded (even if not recorded recently) within each of these areas is included and this list has been continually updated since 1985. After the fire of 1989, species which had not previously been recorded for the bushland were located and the number of others has been seriously depleted. The species, their areas of distribution and flowering months are given in Appendix 1.

VEGETATION RELATIONSHIPS

Referring to the map of the 12 Areas in Figure 1, Area 12 is the limestone escarpment visible from Mounts Bay Road. Area 11 is directly above this and to the east of Forrest Drive. Both of these areas have exposed limestone, which are more abundant in Area 12 than Area 11. Most of the remiander of the Park is sandy soil with a mix of Banskia and Eucalyptus woodland.

Three areas, Area 12, Area 11 and Area 2, recorded species found only in these respective areas. *Poa porphyrocladus, Hydrocotyle hispidula, Leucopogon parviflorus, Daucus glochidiatus and Trymalium ledifolium* are restricted to Area 12, *Acacia lasiocarpa, Lasiopetalum membranaceum, Lyperanthus serratus* and *Caladenia hirta* to Area 11, and *Thysanotus thyrsoideus, Pimelea leucantha* and *Leucopogon racemulosus* to Area 2.

Areas 11 and 12 have several species in common but which are restricted to these two areas. These included

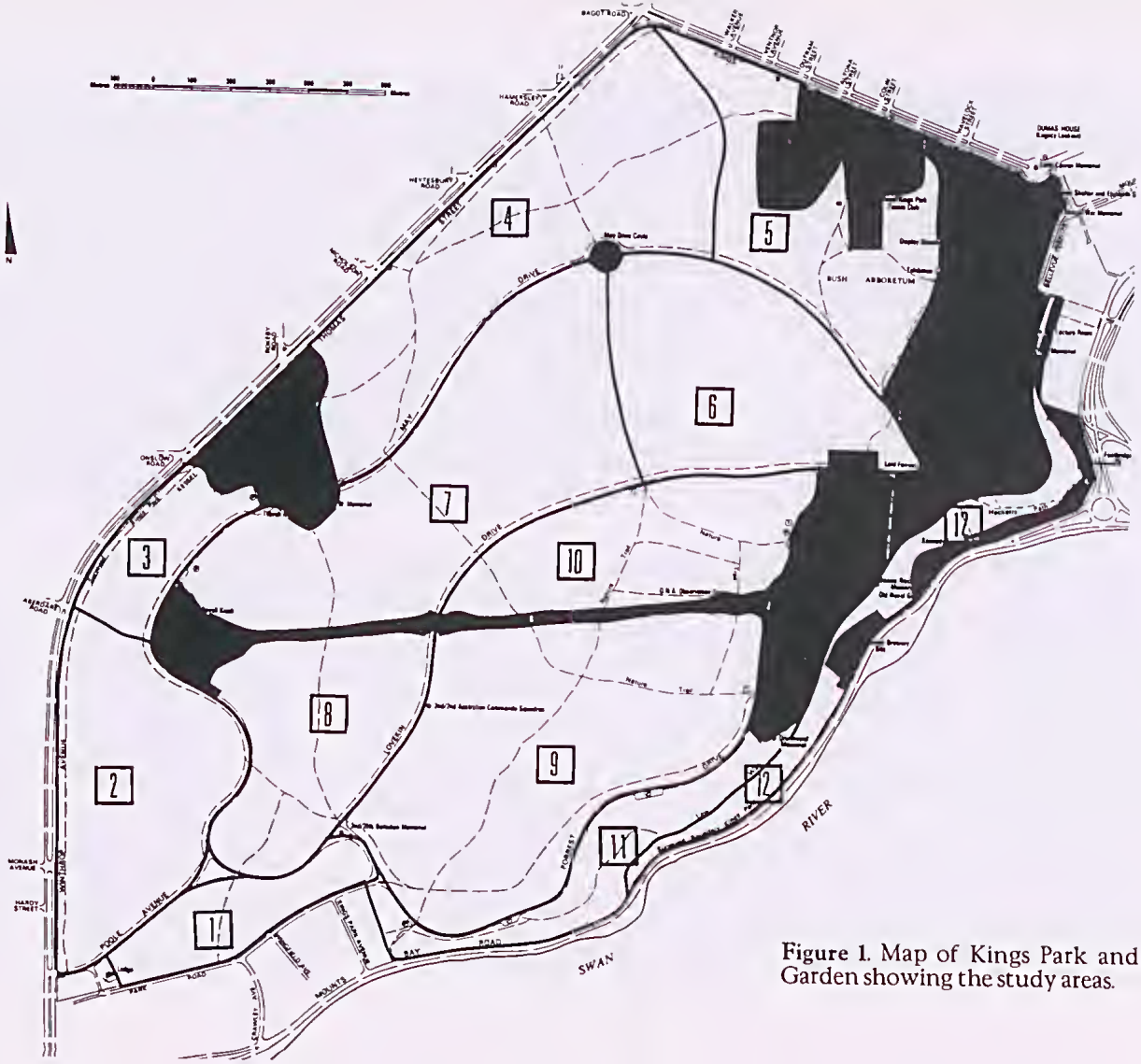

Figure 1. Map of Kings Park and Botanic Garden showing the study areas.

Acacia rostellifera, Acanthocarpus preissii, Calothamnus quadrifidus, Drosera macrantha, Gompholobium aristatum, Grevillea thelemanniana, Isolepis cernua, Isolepis nodosa, Melaleuca acerosa, Melaleuca huegelii, Stipa elegantissima and *Templetonia retusa.* As mentioned above, both these areas have limestone outcropping or close to the surface, which does not occur in the remainder of the bushland.

Occasional species are recorded as being restricted to other areas e.g. *Thelymitra crinita* to Area 2, *Arnocrinum preissii, Petrophile serruriae* and *Stylidium carnosum* (which has not been recorded recently) to Area 5, *Luzula meridonalis* to Area 6, *Pronaya fraseri* to Area 8, *Cassytha glabella* to Area 9, *Diuris brumalis, Eriochilus dilatatus* and *Schoenus brevisetis* to Area 10.

In 1987 Mattiske under took an ecological survey of Kings Park in which she recognised five Site Vegetation Types (Mattiske, 1987). The relationship between the current study and that of Mattiske are outlined in Table 2.

Site Vegetation Types, $E_{B.i}$, described as an "open forest of *Eucalyptus marginata, – Allocasuarina fraseriana – Banksia ilicifolia – Banksia attenuata* on deep moist pale yellow sands" with *Xanthorrhoea preissii, Melaleuca pseudostygia, Bossiaea eriocarpa* and *Stirlingia latifolia* listed as indicator species. This site is included in Area 2.

Site vegetation type ($A_{G.t.}$) described as a "closed heath of mixed Proteaceae – Myrtaceae – Mimosaceae, on shallow sands with frequent limestone pinnacles" corresponds with Area 12. The indicator species listed were *Grevillea thelemanniana, Tempeltonia retusa, Grevillea crithmifolia* and *Trymalium ledifolium.*

Site Vegetation Type $B_{C.t.}$ described as "open woodland of *Eucalyptus gomphocepahala – Banksia attenuata – Allocasuarina fraseriana* on red brown sand with frequent limestone pinnacles, corresponds with Area 11. The indicator species are *Conospermum triplinervium, Phyllanthus calycinus, Dryandra sessilis* and *Melaleuca acerosa".*

The two remaining Site Vegetation Types of Mattiske are $C_{E.g.}$, woodland of *Eucalyptus gomphocephala – Eucalyptus marginata – Eucalyptus calophylla – Allocasuarina fraseriana – Banksia attenuata – Banksia grandis* on yellow sands with weakly leached surface and $D_{E.m.}$, open forest of *Eucalyptus marginata – Allocasuarina fraseriana – Banksia attenuata – Banksia menziesii* on yellow sands, with leached surface.

Table 1. Relationship between Mattiske (1987) Site Vegetation Types (SVT) and study areas.
Mattiske Site Vegetation Types A = $A_{G.t.}$; B = .$B_{C.t.}$; C = $C_{E.g.}$; D = $D_{E.m.}$; E = $E_{B.i.}$

AREA	SVT	AREA	SVT	AREA	SVT
1	C,D	5	C,D	9	C,D
2	C,D,E	6	C,D	10	C,D
3	D	7	C,D	11	B
4	C	8	C,D	12	A

Table 2. Origin of species occurring in the Kings Park bushland.

Number of naturally occurring species	293
Number of other Western Australian species, but introduced to the Kings Park bushland	11
Number of other Australian species, not Western Australian	10
Exotic species (extra Australian) and now naturalised	151

As these occur in pockets throughout the bushland the Areas of this study are not distinct with these Site Vegetation Types.

FLORA RESULTS

Several interesting results have arisen from this study with regard to the number of species by families, flowering times, priority listed species. These will be discussed below.

A. Number of Species

A total of 465 species has been recorded for the bushland. This includes those which are native as well as those which have been introduced and become naturalised.

A total of 38% of the Kings Park bushland flora is introduced. In the Flora of the Perth Region (Marchant, *et al.*, 1987) 27% species were recorded as alien and for the whole of Western Australia approximately 10% (Green, 1985).

There are no species endemic to the Kings Park bushland.

Table 3. Statistical Data

	Native	Alien	Total
Ferns	1	0	1
Gymnosperms	3	0	3
Angiosperms			
Dicotyledons	179	112	292
Monocotyledons	112	60	172

B. Largest Families

There are eight plant families which represent 4% or more of the total species in the Kings Park bushland. These are listed in Table 3 below in decreasing rank.

The family Poaceae has the highest percentage of species but most of these are naturalised in the bushland. The family Orchidaceae is the family with the highest percentage of native species. Of the naturalised species 46 originate from Europe and South Africa; 25 from the Mediterranean Region; 19 from Asia; 11 from north Africa; 9 from South America; 5 or less from eastern, southern and northern Australia, America, Argentina, California, India, Madagascar, Mexico, North America, Spain and Portugal.

The family with the largest number of native species in the bushland is Orchidaceae, which has only 1 naturalised species. Proteaceae and Anthericaceae both have 24 native species but there is an additional introduced species in Proteaceae. Poaceae is the family with the most naturalised species followed by Asteraceae and Papilionaceae. Anthericaceae, Cyperaceae, Haemodoraceae, Epacridaceae, Goodeniaceae and Droseraceae are all families which have no naturalised species in the bushland. It must be remembered that a naturalised species includes those which are

Table 4. Families with 4% or more of the total species in Kings Park.

FAMILY	NATIVE SPECIES	NATURALISED SPECIES	% OF TOTAL SPECIES
Poaceae	9	34	9
Asteraceae	17	23	8.5
Orchidaceae	38	1	8.3
Papilionaceae	18	12	6.4
Proteaceae	24	1	5.3
Myrtaceae	17	8	5.3
Anthericaceae	24	0	5.1
Iridaceae	2	18	4.3

native to other areas in Western Australia but which are not native to the Kings Park bushland.

Families with rankings 1–12 in Green are all represented in the bushland with the exception of Chenopodiaceae which is ranked at 9. Anthericaceae which is ranked at 24 by Green has the second largest number of native species present in the bushland. Another family of interest is Droseraceae which is ranked 36 in Green but 15 in the Kings Park bushland.

C. Flowering Times

The peak flowering months are September and October with August and November also recording many species in flower. There is a significant drop to July and December, tapering to a low in February and March as illustrated in Figure 2. It must be remembered that the months of flowering of many of the species is dependent upon the weather so if the rain comes early and is abundant the annual species will flower earlier,

Table 5. Families with 6 or more native species in the bushland and their ranking in Green (1985).

FAMILY	NATIVE SPECIES	NATURALISED SPECIES	RANKING IN GREEN
Orchidaceae	38	1	11
Proteaceae	24	1	4
Anthericaceae	24	0	24
Papilionaceae	18	12	2
Asteraceae	17	23	5
Myrtaceae	17	8	1
Cyperaceae	16	0	7
Mimosaceae	9	8	6
Haemodoraceae	9	0	27
Poaceae	9	34	3
Epacridaceae	8	0	10
Goodeniaceae	8	0	8
Apiaceae	7	1	22
Stylidiaceae	7	0	12
Droseraceae	6	0	36

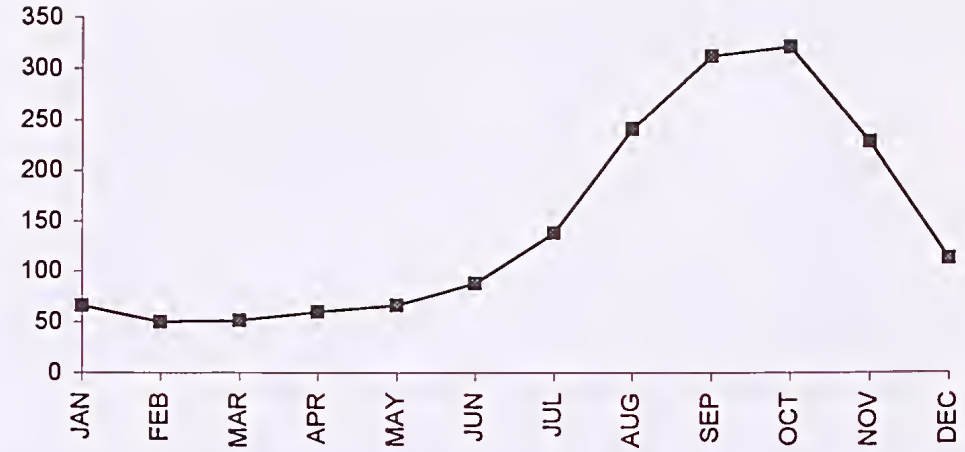

Figure 2. Number of species flowering each month.

similarly if spring ends abruptly with several hot days the bushland dries out quickly with the late flowering species quickly fading.

D. Percentage of Species in the 12 Areas.

Figure 3 illustrates the number of species in each of the 12 areas represented as a percentage of the total number of species. The difference was not significant but area 11, which is the area of the upper scarp, recorded the highest percentage. In this area there is an overlap of species from the upper

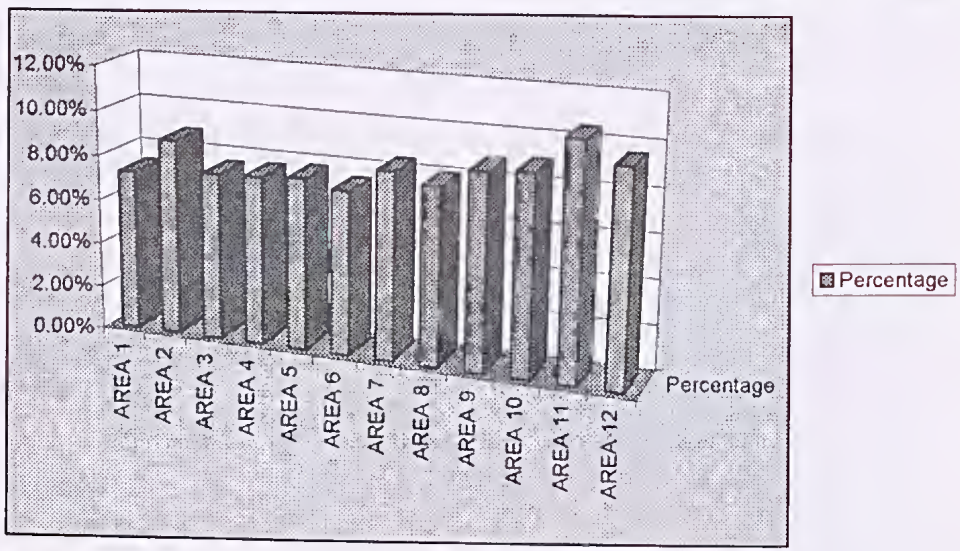

Figure 3. Percentage of total number of species occuring in each area.

sandy areas and the limestone escarpment.

E. Priority Listed Species

The Department of Conservation and Land Management publishes at regular intervals a list of priority species together with their priority number (Hopper *et al.*, 1990). The higher the number the less the plant is under threat. There are 3 priority species listed for the Kings Park bushland.

Table 6. Priority species occurring in the Kings Park bushland.

SPECIES	PRIORITY NUMBER
Dodonaea hakettiana	4
Jacksonia sericea	3
Lasiopetalum membranaceum	2

Jacksonia sericea is widespread throughout the bushland. *Dodonaea hakettiana* occurs in Areas 8, 9, 11, 12. The other species *Lasiopetalum membranaceum* is confined to the limestone escarpment. *Lasiopetalum membranaceum* is the species in the above list which is the most threatened.

F. Kings Park as a type locality.

Several type specimens have been collected from Kings Park. Many of these are now placed in synonymy under other species but the area still remains important. Many of the early collectors in the colony put the collecting locality as Swan River or Perth and it is quite likely that some of these were collected from the vicinity of Mt Eliza. However, in 1839, J.A.L. Preiss, a German botanist, made a collection of 22 species from Mt Eliza of which included type collections of 10 species and 2 varieties one of which is a fungus (Bennett, 1992). Since then other type collections have been made from the vicinity of Kings Park including *Anigozanthos manglesii* var. *flavescens* Ostenf. collected by Ostenfeld in 1914.

CONCLUSION

Although the Kings Park bushland has been altered since settlement it is still rich in native species. It is a valuable resource as remnant bushland, enjoyable for the public to walk or cycle through and see close hand some of Western Australia's unique wildflowers. It is also of importance historically for timber trees, limestone etc utilised and obtained from the Park by the early settlers.

ACKNOWLEDGEMENTS

Thanks are extended to many of the Kings Park Voluntary Guides who told me the locations of many species, in particular David Emery who provided many new locations for orchid species. Mr A. Brown provided the updated orchid names. Dr. P.R. Wycherley encouraged me with the preparation of the "Bushland Plants of Kings Park", during which time the major information was gathered.

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APPENDIX 1

Checklist of native and naturalised species of the Kings Park bushland, together with their occurrence and flowering months.
Species are arranged taxonomically under family and alphabetically under genus.
* = naturalised species
+ = species recorded from this area
- = not present
? = species listed as being present but no locality given.

Species Name	Area Number 1 1 1 1 2 3 4 5 6 7 8 9 0 1 2	Flowering Months J F M A M J J A S O N D
ADIANTACEAE		
Anogramma leptophylla (L.)Link	- - - - - - - - - - - +	- - - - M J J A S O - -
ZAMIACEAE		
Macrozamia riedlei (Fischer ex Gaudich.) C.Gardner	+ + + + + + + + + + + +	- F M - - - - - S O - -
CUPRESSACEAE		
Actinostrobus pyramidalis Miq. in Lehm.	- - - - + - - - - - + -	- - - - - - A S O N -
Callitris preissii Miq. in Lehm.	- - - + - - - - - - + +	- - - - - - - - S O N -
AIZOACEAE		
Carpobrotus edulis (L.)L.Bolus*	- - - - - - - - - - - +	- - - - - - A S O - -
AMARANTHACEAE		
Ptilotus drummondii (Moq.)F.Muell.	+ + + + + + + + + + + -	- - - - - - - - S O N -
Ptilotus polystachyus (Gaudich.)F.Muell.	+ + + + + + + + + + + +	- - - - - J A S O N -
APIACEAE		
Daucus glochidiatus (Labill.)Fischer	- - - - - - - - - - - +	- - - - - - - - - O - -
Eryngium rostratum Cav.	+ + + + + + + + + + + +	- - - - - - A S O N -
Foeniculum vulgare Miller*	- - - - - - - - - - - +	J - - - - - J A S O N D
Homalosciadium homalocarpum (F.Muell.) H.Eichler	- + + + + + + + + + -	- - - - - - - - - O N D
Hydrocotyle hispidula Bunge in Lehm.	- - - - - - - - - - - +	- - - - - - - - - O N -
Trachymene coerulea Graham	- - - - - - - + - - + +	J - - - - - - - - O N D
Trachymene pilosa Smith in Rees	- + + + + + + + + + -	- - - - - - A S O - -
Xanthosia huegelii (Benth.)Steudel	+ + + + + + + + + + + +	- - - - - - A S O N -
APOCYNACEAE		
Vinca major L.*	- - - - - - - - - - + +	- - - - - - A S O N -
ASTERACEAE		
Arctotheca calendula (L.)Levyns*	+ + + + + + + + + + + +	- - - - - J A S O - -
Asteridia pulverulenta Lindley	- - - - - - - - - - ? ?	- - - - - - - - - O N D
Calocephalus angianthoides (Steetz)Benth.	- - - - - - - - - - ? ?	- - - - - - - - - O N -
Centaurea melitensis L.*	- - - - - - - - + - + +	J - - - - - - - - S O N D
Conyza albida Willd.*	+ + + + + + + + + + + +	J - - - - - - A S O N D
Conyza bonariensis (L.)Cronq.*	+ + + + + + + + + + + +	J F M A M - - - O N D
Conyza parva Cronq.*	- - - - - - - + + + - -	- F M - - - - - - - - -
Cotula bipinnata Thunb.*	- - - - - - - - - - - +	- - - - - - - - S - - -
Cotula turbinata L.*	- - - - - - - - - + + +	- - - - - - J A S O - -
Dittrichia graveolens (L.)Greuter*	- - - - - - - - + + + +	- - - A M J J A S O N -
Gnaphalium coarctatum Willd.*	- - - - - - - - - - + -	- - - - - - - - - O N D
Hedypnois rhagadioloides (L.)F.W.Schmidt*	- - - - - - - - - - + -	- - - - - - - - - O - -
Helianthus debilis Nutt.*	- - - - - - - - - - + -	- - M A - - - - - - - -

Helichrysum bracteatum (Vent.)Andrews*	-+----------	-------SO--
Helichrysum cordatum DC.	+++++++++++	JFMA----OND
Hypochaeris glabra L.*	+++++++++++	--AMJJASON-
Lactuca saligna L.*	+++++++++++	JFMAM-------
Lactuca seriola L.*	-+-+----++--	----------D
Lagenifera huegelii Benth. in Endl.	+++++++++++	----JASOND
Millotia tenuifolia Cass.	----------+	-------O--
Olearia axillaris (DC.)F.Muell.	------+---++	--AMJJ-----
Olearia elaeophila (DC)F.Muell. ex Benth.	--------++--	--MAM-------
Olearia paucidentata (Steetz)F.Muell. ex Benth.	----------+-	--AMJJASON-
Osteospermum clandestinum L.f.*	----------++	----JASO--
Podolepis gracilis (Lehm.)Graham	+++++++++++	-----ASOND
Podotheca angustifolia (Labill)Less.	+++++++++++	-------SO--
Podotheca chrysantha (Steetz)Benth.	+++++++++++	-----ASON-
Pseudognaphalium luteoalbum (L.) Hilliard & B.L.Burtt*	-+---------+	JFMAMJJASOND
Quinetia urvillei Cass.	+++++++++++	-----ASOND
Rhodanthe chlorocephala (Turcz.) P.G. Wilson subsp.*rosea* (Hook.)P.G.Wilson*	-----+--++--	-----ASO--
Rhodanthe citrina (Benth.) P.G.Wilson	----------?	-------SON-
Senecio hispidulus A.Rich.	--------+++-	JFMAMJJ-SOND
Senecio lautus G.Forster ex Willd.	+--+--+++++-	J----ASOND
Siloxerus humifusus Labill.	----------	J-------OND
Sonchus oleraceus L.*	+++++++++++	----JJASOND
Taraxacum officinale Wigg.*	-------+----	JFMAMJJASOND
Urospermum picroides (L.)Scop. ex F.W Scop. ex F.W.Schmidt*	+--++++++++x	--------ON-
Ursinia anthemoides (L.)Poiret*	+++++++++++	-----AS---
Waitzia suaveolens (Benth.)Druce	+++++++++++	--------OND
BRASSICACEAE		
Brassica oxyrrhina (Cosson)Willk.*	++--------++	-------SO--
Cardamine hirsuta L.*	+++++++-----	-----AS---
Heliophila pusilla L.f.*	+++++++++++	-----ASO--
Raphanus raphanistrum L.*	----------+-	-----ASOND
BUDDLEJACEAE		
Buddleja madagascariensis Lam.*	----------++	----JA----
CAMPANULACEAE		
Wahlenbergia capensis (L.)A.DC.*	+++++++++++	-------SON-
Wahlenbergia preissii Vriese	-+++++++---+	-------SO--
CARYOPHYLLACEAE		
Cerastium glomeratum Thuill.*	--------++++	-----ASON-
Petrorhagia velutina (Guss.)P.Ball & Heyw.*	+++++++++++	-------SON-
Polycarpon tetraphyllum (L.)L.*	--------++++	-------SON-
Sagina apetala Ard.*	----------++	-------SON-
Silene gallica L.*	++--+---+++-	-----JASOND
Spergula arvensis L.*	--------+++-	-----ASON-
Stellaria media (L.)Villars*	--------+++-	-----JAS---
CASUARINACEAE		
Allocasuarina fraseriana (Miq.)L.Johnson	+++++++++++	---MJJASO--
Allocasuarina humilis (Otto & Dietr.)L.Johnson	--------++++	---MJJASON-

CHENOPODIACEAE		
Atriplex cinerea Poiret in Lam.	----------+	------SO--
Chenopodium album L.*	---++-------	--MA-------
Chenopodium ambrosioides L.*	----------+	--MAMJJ-----
Enchylaena tomentosa R.Br.	++----+--+--	----MJJAS---
Rhagodia baccata (Labill.)Moq. in DC.	--------++++	--MAMJ------
CONVOLVULACEAE		
Ipomoea indica (Burman)Merr.*	----------+	JFMA----ND
CRASSULACEAE		
Crassula colorata (Nees)Ostenf.	++++++++++	-----ASO--
Hibbertia huegelii (Endl.)F.Muell.	-++--++++++-	-----ASON-
Hibbertia hypericoides (DC.)Benth.	++++++++++	--AMJJASON-
Hibbertia racemosa (Endl.)Gilg in Endl.	-+++++++-+--	-----JASON-
DROSERACEAE		
Drosera erythrorhiza Lindley	++++++++++	--MAMJJ-----
Drosera glanduligera Lehm.	----------?	-----ASO--
Drosera macrantha Endl. in Endl.	----------++	-----JJASO--
Drosera pallida Lindley	++++++++++-	-----ASON-
Drosera menziesii R.Br. ex. DC.	-++-------+-	-----ASON-
Drosera stolonifera Endl. in Endl.	++++++++++	-----JAS---
EPACRIDACEAE		
Astroloma ciliatum (Lindley)Druce	------+-+---	---MJJASO--
Astroloma macrocalyx Sonder in Lehm.	++++++++---	--AMJJ-----
Astroloma pallidum R.Br.	++++++++++	--MAMJJASON-
Conostephium pendulum Benth. in Endl.	++++++++++	-----JJAS---
Conostephium preissii Sonder in Lehm.	++++++++---	---MJJ------
Leucopogon parviflorus (Andrews)Lindley	----------+	-----JAS---
Leucopogon propinquus R.Br.	++++++++++	--MAMJJ-----
Leucopogon racemulosus DC.	-+----------	--MAMJJ-----
EUPHORBIACEAE		
Adriana quadripartita (Labill.)Gaudich. in Freyc.	----------+	------SON-
Euphorbia australis Boiss.*	++++++++++	JFMAMJJASOND
Euphorbia peplus L.*	++++++++++	-----JASO--
Monotaxis grandiflora Endl. in Endl.	++++++++++	J-----ASOND
Phyllanthus calycinus Labill.	++++++++++	-----JJASON-
Poranthera microphylla Brogn.	-++---++++	-----ASON-
Ricinocarpos glaucus Endl. in Endl.	--++++--+---	-----JJASO--
Ricinus communis L.*	----------+	-----AS---
FUMARIACEAE		
Fumaria capreolata L.*	++--++---++++	-----JASO--
GERANIACEAE		
Erodium botrys (Cav.)Bertol.*	++------+++-	-----AS---
Erodium moschatum (L.)L'Her. in Aiton*	++------+++-	-------SO--
Geranium molle L.*	----------++	-------ON-
Pelargonium capitatum (L.)L'Her. in Aiton*	++----++++++	-----JASON-
GOODENIACEAE		
Dampiera linearis R.Br.	++++++++++	-----JASON-
Lechenaultia floribunda Benth. in Endl.	-------++-+-	-------ON-
Scaevola anchusifolia Benth.	--------++++	-------ON-

Scaevola canescens Benth. in Endl.	+++++++++++	--MAMJJASON-
Scaevola crassifolia Labill.	----------+	-----ASOND
Scaevola nitida R.Br.	----------+	-------ND
Scaevola paludosa R.Br.	+++++++++++	------SOND
Scaevola thesioides Benth.	----------?	------SOND
GYROSTEMONACEAE		
Tersonia cyathiflora (Fenzl.)A.S.George	-+----------	----JJASON-
HALORAGACEAE		
Glischrocaryon aureum (Lindley)Orch.	-+++--++----	------SO--
Gonocarpus pithyoides Nees in Lehm.	---------?-	-------ON-
LAMIACEAE		
Hemiandra pungens R.Br.	+--++++----+	------SO--
Leonotis leonurus (L.)W.T.Aiton*	----------++	--AM------
Stachys arvensis (L.)L.*	----------+	-----ASO--
LAURACEAE		
Cassytha glabella R.Br.	--------+---	JFMAMJJASOND
Cassytha racemosa Nees	----------++	JFMAMJJASOND
LINACEAE		
Linum usitatissimum L.*	-+----------	-------ON-
LOBELIACEAE		
Isotoma scapigera (R.Br.)Don	----------+	------SOND
Lobelia gibbosa Labill.	+++++++++++	JFM-----ND
Lobelia tenuior R.Br.	+++++++++++	J------OND
LOGANACEAE		
Mitrasacme paradoxa R.Br.	-++---------	------SON-
LORANTHACEAE		
Amyema miquelii (Lehm. ex Miq.)Tieghem	---------+--	--MAMJJ-----
Nuytsia floribunda (Labill.)R.Br. ex Fenzl.	--+---+-----	J-------ND
MALVACEAE		
Lavatera arborea L.*	--------+---	-----ASOND
Malva parviflora L.*	---------+--	-----ASON-
MIMOSACEAE		
Acacia acuminata Benth.*	------+---+-	-----JASO--
Acacia baileyana F.Muell.*	-++---++----	-----JA----
Acacia cochlearis (Labill.)H.L.Wendl.	+++++++++++	-----AS---
Acacia cyclops Cunn.ex Don	-+---------+	J-----SOND
Acacia dealbata Link*	------+-----	-----JA----
Acacia decurrens (Wendl.)Willd.*	--+---------	-------S---
Acacia huegelii Benth. in Endl.	++++++++---	-------OND
Acacia lasiocalyx C.R.P.Andrews*	-++---------	-----ASO--
Acacia lasiocarpa Benth. in Endl.	----------+-	----JJASO--
Acacia microbotrya Benth.*	---+--+-----	--AMJ-----
Acacia podalyriifolia A.Cunn. ex Don*	-++---+-----	-----JJA----
Acacia pulchella R.Br. in W.T.Aiton	+++++++++++	----JJASO--
Acacia pycnantha Benth.*	---+--+-+---	-----AS---
Acacia rostellifera Benth.	----------++	-----ASO--
Acacia saligna (Labill.)H.L.Wendl.	+++++++++++	-------AS---
Acacia stenoptera Benth.	++++++++++-	---AJJAS---
Acacia willdenowiana H.L.Wendl.	++++++++++-	----JJASO--

MOLLUGINACEAE		
Macarthuria australis Huegel ex Endl.	- - - - - - - - +++ +	- - - - MJJAS ON -
MYOPORACEAE		
Eremophila glabra (R.Br.)Ostenf.	- - - - - - + - - +++	J - - - - - JAS OND
Myoporum insulare R.Br.	- - - - - - - - - - +	- - - - - - ASON -
MYRTACEAE		
Agonis flexuosa (Sprengel)Schauer*	+ + + + + + + + + + -	- - - - - - - SOND
Calothamnus quadrifidus R.Br. in W.T.Aiton	- - - - - - - - - + +	- - - - - - ASOND
Calytrix angulata Lindley	- - - + + + - - - - -	- - - - - - - SOND
Calytrix flavescens Cunn.	- - - - + + - - + + + -	J - - - - - - - - ND
Calytrix fraseri Cunn.	+ + + + + + + + + + -	JFM - - - - - - - D
Chamelaucium uncinatum Schauer in Lehm.*	+ + + + + + + + + + +	- - - - - - ASON -
Eremaea pauciflora (Endl.)Druce	- + + + + + + + + - -	- - - - - - - SOND
Eucalyptus calophylla Lindley	+ + + + + + + + + + +	JFMAM - - - - - -
Eucalyptus citriodora Hook.*	- - - + + + + - - + -	- - - - MJ - - - - -
Eucalyptus cladocalyx F.Muell.*	- - - + + + + - - + -	JF - - - - - - - - -
Eucalyptus decipiens Endl. in Endl.	- - - - - - - - + + - -	- - - - - - - SON -
Eucalyptus erythrocorys F.Muell.*	- - - + + - - - - - + -	JFMA - - - - - - -
Eucalyptus gomphocephala DC.	+ + + + - + + + + + +	JFMA - - - - - - -
Eucalyptus lane-poolei Maiden*	- - - - - - - - + - - -	- FMAM - - - - - -
Eucalyptus marginata Donn ex Smith	+ + + + + + + + + + +	JA - - - - - - SOND
Eucalyptus todtiana F.Muell.*	- - - - - - - - + - - -	- F - - - - - - - -
Hypocalymma robustum (Endl.)Lindley	+ + + + + + + + + + +	- - - - - JAS O - -
Kunzea ericifolia (Smith)Heynh.	- - - - + - + - - - -	- - - - - - - SON -
Leptospermum laevigatum (Gaertner)F.Muell.*	- - - - + + + - - - -	- - - - - - - SO - -
Melaleuca acerosa Schauer in Lehm.	- - - - - - - - - + + +	- - - - - - - SOND
Melaleuca huegelii Endl. in Endl.	- - - - - - - - - - + +	J - - - - - - - - ND
Melaleuca lanceolata Otto	- - - - + - + + - - + +	JFM - - - - - OND
Melaleuca pentagona Labill.*	- - - - - - - - - - + -	- - - - - - - SO - -
Verticordia densiflora Lindley	- - - - + - - - - - - -	J - - - - - - - - ND
Verticordia monadelpha Turcz.*	- + - - - - - + - - - -	- - - - - - - - OND
ONAGRACEAE		
Epilobium hirtigerum Cunn.	- + - - - - - - - - - -	JFM - - - - - - ND
Oenothera drummondii Hook.*	- - - - - - - - - - - +	- - - - - - - - OND
Oenothera glazioviana Micheli*	- - - - - - - - - + - -	JFM - - - - - - ND
OROBANCHACEAE		
Orobanche minor Smith*	+ + + + + + + + + + +	- - - - - - ASON -
OXALIDACEAE		
Oxalis caprina Thunb.*	- - - - - - + - - - + +	- - - - - - - - ON -
Oxalis corniculata L.*	- - - - - - - - - - + +	- - - - - - - - ON -
Oxalis glabra Thunb.*	- + - - - - - + - - - -	- - - - MJJA - - - -
Oxalis pes-caprae L.*	+ + + + + + + + + + +	- - - - - JJAS O - -
Oxalis purpurea L.*	- + + - - - + + + - - -	- - - - MJJAS - - -
PAPAVERACEAE		
Papaver rhoeas L.*	- - - - - - - - - - - +	- - - - - - - - O - -
Romneya coulteri Harvey*	- - - - - - - - - - - +	- - - - - - - - - ON -
PAPILIONACEAE		
Bossiaea eriocarpa Benth.	- - - - - + + + + + - -	- - - - - JAS O - -

Bossiaea ornata (Lindley)Benth	---------?--	----JASO--
Daviesia decurrens Meissner in Lehm.	-+++--++----	------AS---
Daviesia divaricata Benth. in Endl.	+++++++++++	----JASO--
Daviesia nudiflora Meissner	+++++++++++	----JJA----
Daviesia triflora M.D.Crisp	++++++++++-	---MJJAS---
Gompholobium aristatum Benth.	----------++	------SO--
Gompholobium tomentosum Labill.	+++++++++++	-----ASOND
Hardenbergia comptoniana (Andrews) Benth. in Endl.	+++++++++++	----JJAS---
Hovea pungens Benth. in Endl.	----------+	----JJAS---
Hovea trisperma Benth. in Endl.	+++++++++++	----JJAS---
Isotropis cuneifolia (Smith)Benth.	-+++-++++++-	-----ASO--
Jacksonia furcellata (Bonpl.)DC.	++-+----++-+	JFM---ASOND
Jacksonia sericea Benth.	++++++++++-	JF-------D
Jacksonia sternbergiana Huegel	+++++++++++	JFMAMJJASOND
Kennedia prostrata R.Br. in W.T.Aiton	+++++++++++	----JASON-
Lupinus consentinii Guss.*	---------+++	-----ASON-
Lupinus mutabilis Sweet*	---------+++	-----AS---
Medicago polymorpha L.*	----+----+++	----JASO--
Melilotus indica (L.)All.*	+----------+	-----ASO--
Mirbelia dilatata R.Br.*	----------?-	-------SOND
Nemcia capitata (Benth.)Domin	+++++++++++	----JJAS---
Templetonia retusa (Vent.)R.Br. in W.T.Aiton	----------++	--AMJJA-----
Trifolium arvense L.*	--------+-++	-------SON-
Trifolium campestre Schreber in Sturm*	---++---+-++	-----ASON-
Trifolium dubium Sibth.*	---++---+-++	-----ASON-
Trifolium glomeratum L.*	--------+-++	-------SON-
Trifolium subterraneum L.*	----------+-	-----ASON-
Trifolium tomentosum L.*	--------+-+-	-------SON-
Vicia sativa L.*	++--------+-	-------SON-
PITTOSPORACEAE		
Pronaya fraseri (Hook.)E.M.Bennett	-------+----	JF-----D
Sollya heterophylla Lindley	-+---+------	JF------OND
PLANTAGINACEAE		
Plantago lanceolata L.*	------+-----	JFM----OND
POLYGALACEAE		
Comesperma calymega Labill.	-+-----+----	-------SOND
Polygala myrtifolia L.*	----------+	-----ASON-
POLYGONACEAE		
Emex australis Steinh.*	---------+--	-----A-----
Rumex crispus L.*	----------+	-------S---
PORTULACEAE		
Calandrinia corrigioloides F.Muell. ex Benth.	+++++++++++	-----ASON-
Calandrinia liniflora Fenzl.	-+------++--	-------ON-
PRIMULACEAE		
Anagallis arvensis L.*	+++++++++++	-----ASOND
Samolus repens (Forster and G.Forster)Pers.	----------+	JFMAMJJASOND
PROTEACEAE		
Adenanthos cygnorum Diels in Diels & E.Pritzel	----+----+++	JF-----SOND

Banksia attenuata R.Br.	+++++++++++	JF - - - - - - SOND
Banksia grandis Willd.	++++++++++-	- - - - - - - - SOND
Banksia ilicifolia R.Br.	-+- - - - - - - - - -	- - - - - - - - SOND
Banksia menziesii R.Br.	+++++++++++	-FMAMJJA- - - -
Banksia prionotes Lindley	- - - +++ - - - - +-	-FMAMJJA- - - -
Conospermum stoechadis Endl.	- - - - - - - - + - - -	- - - - - -JASO - -
Conospermum triplinervium R.Br.	-+- - - ++ - ++ - -	- - - - - - -ASON -
Dryandra nivea (Labill.)R.Br.	+++++++++++	- - - - MJJAS - - -
Dryandra sessilis (Knight)Domin	+++++++++++	- - - - MJJASON -
Grevillea crithmifolia R.Br.	- - - - + - + - ++++	- - - - - -JAS - - -
Grevillea pilulifera (Lindley)Druce	- - - - - - - - - +-	- - - - - -JAS - - -
Grevillea thelemanniana Huegel ex Endl.	- - - - - - - - - ++	- - - - MJJAS - - -
Grevillea vestita (Endl.)Meissner	-++ - - - +++++-	- - - - - JJAS - - -
Hakea costata Meissner*	- - - - - - - - - + - -	- - - - - -JAS - - -
Hakea lissocarpha R.Br.	- - - - - - - - - +-	- - - - - JJAS - - -
Hakea prostrata R.Br.	++++ - +++ - +++	- - - - - - -ASON -
Hakea trifurcata (Smith)R.Br.	- - - - - + - - - - +-	- - - - - -JA- - - -
Persoonia saccata R.Br.	-+++ - ++++++-	J- - - - -JASOND
Petrophile linearis R.Br.	+++++++++++	- - - - - - -ASON -
Petrophile macrostachya R.Br.	+++++++++++	- - - - - - -ASON -
Petrophile media R.Br.	- - - - - - - - - ++ -	- - - - - - - - SOND
Petrophile serruriae R.Br.	- - - - + - - - - - -	- - - - - - -ASON -
Stirlingia latifolia (R.Br.)Steudel	+++++++++++	- - - - - - -ASON -
Synaphea spinulosa (Burm. f.)Merr.	-++ - - - +++ - - -	- - - - - JJASON -
RANUNCULACEAE		
Clematis microphylla DC.	-+- - - - ++ - ++ -	- - - - - -JAS - - -
RHAMNACEAE		
Cryptandra arbutiflora Fenzl in Endl.	+++++++++++	- - - - MJJAS - - -
Rhamnus alaternus L.*	++++ - - - ++ - ++	- - - - - -JA- - - -
Spyridium globulosum (Labill.)Benth.	-+- +++++ - - ++	- - - - - JJAS - - -
Spyridium tridentatum (Steudel)Benth.	- - - - - - - - - +++	JF - - - - - - - - - D
Trymalium ledifolium Fenzl. ssp *ledifolium*	- - - - - - - - - - +	- - - - - -JA- - - -
RUBIACEAE		
Opercularia hispidula Endl. in Endl.	- - - - - - - - - - +	- - - - - - - - OND
Opercularia vaginata Labill.	+++++++++++	- - - - - - -ASO - -
RUTACEAE		
Boronia ramosa (Lindley)Benth.	- - - - - - - - - +- -	- - - - - -JASO - -
Eriostemon spicatus A.Rich.	+++++++++++	- - - - - JJASO - -
SAPINDACEAE		
Dodonaea hackettiana W.Fitzg.	+- - - - - - +- - ++	- - - - - -JASO - -
SCROPHULARIACEAE		
Dischisma capitatum (Thunb.)Choisy*	++++++++++-	- - - - - - -AS - - -
Misopates orontium (L.)Raf.*	++- - - - - - - - - -	- - - - - - -ASO - -
SOLANACEAE		
Anthocercis ilicifolia Hook.	- - - - - - - - ++++	- - - - - JJASO - -
Anthocercis littorea Labill.	- - - - - - - - ++++	- - - - - JJASO - -
Lycium ferocissimum Miers*	+- - - - - - - - - -	- - - - - - - - ON -
Nicotiana glauca Graham*	- - - - - - - - - +- -	- - - - - - -ASON -
Solanum nigrum L.*	+++++++++++	JFMA - -JASOND
STACKHOUSIACEAE		
Tripterococcus brunonis Endl. in Endl.	- - - - - - - - - ++ -	- - - - - - -ASON -

STERCULIACEAE		
Brachychiton populneus (Schott)R.Br.*	++++++++++-	J- - - - ---- - ND
Lasiopetalum membranaceum (Steudel)Benth.	- - - - - - - - - - +	-- - - - ---SO- -
STYLIDACEAE		
Levenhookia stipitata (Sonder)F.Muell.	++++++++++	-- - - - ---- SON
Stylidium brunonianum Benth. in Endl.	++++++++++-	-- - - - ---SON-
Stylidium calcaratum R.Br.	- -+++++++++-	-- - - - ---SON-
Stylidium carnosum Benth. in Endl.	- - - -+- - - - - -	-- - - - ---SO- -
Stylidium piliferum R.Br.	- - - - - - - - - - ?	-- - - - ---SO- -
Stylidium repens R.Br.	++++++++++-	JFMAMJJASOND
Stylidium schoenoides DC.	-++++++++++-	-- - - - --ASO- -
THYMELACEAE		
Pimelea leucantha Diels in Diels & E.Pritzel	-+- - - - - - - - -	-- - - - --ASON-
Pimelea rosea R.Br.	+++- - - -+++-	-- - - - --ASON-
Pimelea sulphurea Meissner	+++- - -+++++-	-- - - - -JASO- -
TROPAEOLACEAE		
Tropaeolum majus L.*	- - - - - - - - - - +	-- - - - ---SON-
VALERIANACEAE		
Centranthus macrosiphon Boiss.*	++- - - - - - - -++	-- - - - --ASON-
VERBENACEAE		
Lantana camara L.*	- - - - - - - - - - +	-- - - - JJA- - - -
VIOLACEAE		
Hybanthus calycinus (DC.ex Ging)F.Muell.	++++++++++++	-- - - - -JASO- -
AGAVACEAE		
Agave americana L.*	- - - - - - - - - - +	JF- - - ---- - - -
*Yucca filamentosa**	- - - - - - - - - -++	-FM- - ---- - - -
ALLIACEAE		
Allium triquetrum L.*	++++++++++++	-- - - - --AS- - -
*Nothoscordum gracile**	+- - - - - - - - -+-	-- - - - ---- ON-
AMARYLLIDACEAE		
Amaryllis belladonna L.*	-+-+-++- - - -	-FMA- ---- - - -
*Narcissus papyraceus**	- - - - - - - - - ++	-- - - - JJ- - - -
Narcissus tazetta L.*	++++++++- -++	-- - - - -JAS- - -
ANTHERICACEAE		
Agrostocrinum scabrum (R.Br.)Baillon	++- - - - -+- -+-	-- - - - ---SOND
Arnocrinum preissii Lehm. ex Endl.	- - - -+- - - - - -	-- - - - ---- OND
Arthropodium capillipes Endl. in Lehm.	++++++++++++	JFM- - ---- - ND
Burchardia umbellata R.Br.	++++++++++++	-- - - - --ASO- -
Caesia parviflora R.Br.	++++++++++	-- - - - ---SON-
Chamaescilla corymbosa (R.Br.)F. Muell. ex Benth.	- - - - - - - - -+- -	-- - - - ---SO- -
Corynotheca micrantha (Lindley)J.F.Macbr.	++++++++++++	J- - - - ---- - ND
Laxmannia ramosa Lindley	- - - - -+- - - - - -	-- - -MJ- - - - -
Laxmannia squarrosa Lindley	- - -++++-+-++	-- - - - --ASON-
Lomandra caespitosa (Benth.)Ewart	- - - - -+++++- -	-- - - - -JAS- - -
Lomandra hermaphrodita (C.R.P.Andrews) C.Gardner	++++++++++++	-- -AMJ- - - - -

Lomandra maritima T.S.Choo	-+++++++----	-----ASO--
Lomandra micrantha (Endl.)Ewart	+++++++++++	---MJJAS---
Lomandra nigricans T.D.Macfarlane	+++++++++++	----JJA----
Lomandra preissii (Endl.)Ewart	+++++++++++	--AMJJ-----
Lomandra suaveolens (Endl.)Ewart	++++++++++-	--AMJJ-----
Sowerbaea laxiflora Lindley	+++++++++++	-----ASO--
Thysanotus arenarius N.H.Brittan	+++++++++++	-------OND
Thysanotus dichotomus (Labill.)R.Br.	----------	-----SOND
Thysanotus manglesianus Kunth.	+++--++++++x	-----ASON-
Thysanotus sparteus R.Br.	+++++++++++	JF-------D
Thysanotus thyrsoideus Baker	-+---------	-----SON-
Thysanotus triandrus (Labill.)R.Br.	++++++++---	-----SON-
Tricoryne elatior R.Br.	+++++++++++	JF----SOND
ARACEAE		
Zantedeschia aethiopica (L.)Sprengel*	+---------+	-----ASO--
ASPARAGACEAE		
*Myrsiphyllum asparagoides**	+++++++++++	-----AS---
*Myrsiphyllum declinatum**	+++++++++++	-----JA----
CYPERACEAE		
Centrolepis drummondiana (Nees)Walp.	+++++++++++	-----SO--
Isolepis cernua (M.Vahl)Roemer & Schultes	---------++	-------OND
Isolepis marginata (Thunb.)A.Dietr.	-+++--++++++	-----JASO--
Isolepis nodosa (Rottb.)R.Br.	----------++	JFM-----ND
Lepidosperma squamatum Labill.	+++++++++++	---MJJ-----
Lepidosperma costale Nees in Lehm.	-++---++----	--AM-------
Lepidosperma gladiatum Labill.	----------+	J-------ND
Lepidosperma leptostachyum Benth.	++++++++++-	-----JAS---
Lepidosperma scabrum Nees in Lehm.	++++++++++	--AM-------
Mesomelaena pseudostygia (Kuek.) K.L.Wilson	++++++++++	--MA--------
Schoenus benthamii F.Muell.	----------	-------ON-
Schoenus brevisetis (R.Br.)Benth.	---------+--	-------OND
Schoenus curvifolius (R.Br.)Benth.	-+++++++---	-----JAS---
Schoenus grandiflorus (Nees)F.Muell.	+++++++++++	--AMJJ-----
Schoenus latitans S.T.Blake	-----+++----	--AM-------
Tetraria octandra (nees)Kuek.	+++++++++++	----JJASON-
DASYPOGONACEAE		
Acanthocarpus preissii Lehm.	----------++	--AMJJA-----
Calectasia cyanea R.Br.	+++++++++++	----JJAS---
Dasypogon bromeliifolius R.Br.	-+--+++---+-	J------SOND
COMMELINACEAE		
Cartonema philydroides F.Muell.	---------+--	-------ON-
HAEMODORACEAE		
Anigozanthos humilis Lindley	-+------+---	-----ASO--
Anigozanthos manglesii D.Don in Sweet	+++++++++++	-------SON-
Conostylis aculeata R.Br.	+++++++++++	-------SO--
Conostylis candicans Endl.	-+--------++	-----ASO--
Conostylis setigera R.Br.	++++++++++-	-------SA--
Haemodorum laxum R.Br.	----+++++++-	-------ON-
Haemodorum paniculatum Lindley	+++++++++++	-------OND
Haemodorum spicatum R.Br.	+++++++++++	-------ND
Phlebocarya ciliata R.Br.	----------?	-----ASON-

HYACINTHACEAE		
Ornithogalum thrysoides Jacq.*	-+--------+-	----M----O--
IRIDACEAE		
Babiana stricta (Aiton)Ker Gawler*	----+------+	-----ASO--
Chasmanthe floribunda (Salisb.)N.E.Br.*	+++++++--++-	-----JASO--
Ferraria crispa Burman*	+----------+-	-----AS---
Freesia affin. *leichtlini* Klatt.*	++++++++++++	-----ASO--
Gladiolus angustus L.*	++++--++----	-------OND
Gladiolus caryophyllaceus (Burm.f.)Poiret*	++++++++++--	-----ASO--
Hesperantha falcata (L.f.)Ker Gawler*	+----------+-	-----ASO--
Homeria flaccida Sweet*	---++++---+-	-------SON-
Ixia maculata L.*	++++++++--+-	-----AS---
Ixia maculata hybrid*	---++++-----	-------SON-
Ixia polystachya L.*	+--+--+-----	-------SO--
Lachenalia reflexa Thunb.*	--------++--	-----JA----
Leucojum aestivum L.*	+----------+-	-----JAS---
Orthrosanthus laxus (Endl.)Benth.	+------+--++	-----ASO--
Patersonia occidentalis R.Br.	-++++--++++-	-------SO--
Romulea rosea (L.)Ecklon*	++++++++++++	-----ASO--
Sparaxis bulbifera (L.)Ker Gawler*	++---------+-	-------SO--
Watsonia aletroides (Burm.f.)Ker Gawler*	----+-------	-------S---
Watsonia bulbillifera J.Mathews*	---++++++++-	-------OND
Watsonia meriana (L.)Miller*	+----+------	-------O--
JUNCACEAE		
Juncus pallidus R.Br.	----------+	-------ON-
Luzula meridionalis Nordensk.	-----+------	-------SON-
JUNCAGINACEAE		
Triglochin centrocarpa Hook.	----------+	-----JASO--
ORCHIDACEAE		
Burnettia nigricans (R.Br.) Hopper & A.P.Brown	-++--++-----	-----ASO--
Caladenia arenicola Hooper & A.P.Brown	++++++++++--	-------SO--
Caladenia arenicola x *C. georgei*	--++--++++---	-------SO--
Caladenia discoidea Lindley	++------+---	-----ASO
Caladenia flava R.Br. ssp. *flava*	++++++++++++	-----ASO--
Caladenia flava x *C.latifolia* R.Br.	---------+--	-----AS---
Caladenia georgei Hooper & A.P.Brown	++++++++++++	-------SON-
Caladenia georgei x *C.longicauda* Lindley	----+----+--	-------SO--
Caladenia hirta Lindley	----------+-	-----ASO--
Caladenia latifolia R.Br.	++++++++++++	-----ASO--
Caladenia longicauda Lindley ssp. *calcigena* Hooper & A.P.Brown	--+---+-+++-	-----ASON-
Caladenia longiclavata E.Coleman	-++---------	-----ASO--
Caladenia macrostylis Fitzg.	+------+----	-----ASO--
Caladenia nana Endl.	--+---------	-------SO--
Caladenia reptans Lindley ssp. *reptans*	-+-------+--	----JA----
Cyanicula deformis R.Br.	++++++++++--	----JJA----
Cyanicula gemmata Lindley	-+------++--	-----ASO--
Cyanicula sericea Lindley	-+-------+--	-----AS---
Diuris brumalis D. Jones	---------+--	----JA----
Diuris corymbosa Lindley	++++++++++++	-------SO--
Diuris magnifica D. Jones	++++++++++--	-----ASO--
Elythranthera brunonis (Endl.)A.S.George	-----++--+--	-------SO--

Eriochilus dilatatus Lindley	- - - - - - - - - + - -	- - - AMJ - - - - - -
Leporella fimbriata (Lindley) A.S.George	- - - - - - - + - - - -	- - - AMJ - - - - - -
Leptoceras menziesii R.Br.	- - - - - - - - + - - -	- - - - - - ASO - -
Microtis unifolia (G.Forster) H.G.Reichb.	+ + + + + + + + + + + +	J - - - - - - - - OND
Monadenia bracteata (Sw.) T.Durand*	- - - - - - - - - - + -	- - - - - - - - OND
Paracaleana nigrita (Lindley) Blaxell	- + - - - - - - - - - -	- - - - - - ASO - -
Prasophyllum elatum R.Br.	- ++ - - - - + - - -	- - - - - - ASON -
Prasophyllum giganteum Lindley	+ + + - - - - + - - ++	- - - - - - - SON -
Pterostylis barbata Lindley	- + + + + + + + + - -	- - - - - - SO - -
Pterostylis nana R.Br.	- + - - - - ++ - - - -	- - - - - JAS - - -
Pterostylis recurva Benth.	+ + + + + + + + + - -	- - - - - - AS - - -
Pterostylis scabra Lindley	+ + + + + + + + + - -	- - - - - JA - - - -
Pterostylis vittata Lindley	+ + + + + + + + + + -	- - - - JJA - - - -
Thelymitra crinita Lindley	- + - - - - - - - - - -	- - - - - - - - O - -
Thelymitra fuscolutea R.Br.	- - - - - + - + - - - -	- - - - - - - - OND
Thelymitra nuda R.Br.	++ - - - + - + - - - -	- - - - - - - SON -
PHORMIACEAE		
Dianella divaricata R.Br.	+ + + + + + + + + + +	- - - - - - - - ON -
POACEAE		
Aira caryophyllea L.*	- ++ - - - - - - - ++	- - - - - - - - ON -
Amphipogon turbinatus R.Br.	+ + + + + + + + + - -	- - - - - - - SON -
Arundo donax L.*	- - - - - - - - - - +	- - - AMJ - - - - - -
Avena barbata Link in Schrader*	+ + + + + + + + + + +	- - - - - - ASO - -
Avena fatua L.*	+ + + + + + + + + + +	- - - - - - ASOND
Briza maxima L.*	+ + + + + + + + + + +	- - - - - - - SO - -
Briza minor L.*	+ + + + + + + + + + +	- - - - - - - SON -
Bromus catharticus M.Vahl.*	- - - - - - - - - + + +	- - - - - - - SON -
Bromus diandrus Roth*	- - - - - - - - - + + +	- - - - - - - SON -
Bromus hordeaceus L.*	- - - - - - - - - - ++	- - - - - - ASO - -
Bromus madritensis L.*	- - - - - - - - - - ++	- - - - - - - - ON -
Cortaderia selloana (Schultes & J.H.Schultes) Asch. & P.Graeb.*	- - - - - - - - - + - -	- - - - JJAS - - -
Cynodon dactylon (L.) Pers.*	+ + + + + + + + + + +	- - - - - - - - ON -
Danthonia caespitosa Gaudich. in Freyc.	- - - - - - - - - - ++	- - - - - - - - ON -
Digitaria ciliaris (Retz.) Koeler*	- - - - - - - - + + + +	JFM - - - - - - ND
Digitaria sanguinalis (L.) Scop.*	- - - - - - - - + + + +	JFMAM - - - - - - D
Ehrharta calycina Smith*	+ + + + + + + + + + +	- - - - - - AS - - -
Ehrhartia longiflora Smith*	+ + + + + + + + + + +	- - - - - JASON -
Eragrostis curvula (Schrader) Nees*	+ + + + + + + + + + +	JFMAM - - - - - D
Hordeum leporinum Link*	+ + + + + + + + + + +	- - - - - - - SO - -
Lagurus ovatus L.*	+ + + + + + + + + + +	- - - - - - ASOND
Lolium perenne L.*	- - - - - - - - + + + +	- - - - - - - SOND
Lolium rigidum Gaudin*	- - - - - - - - - + + +	- - - - - - - SON -
Microlaena stipoides (Labill.) R.Br.	- + - - - - - + + + -	- - - - - - - SON -
Neurachne alopecuroidea R.Br.	- ++ - - - - ++ - - -	- - - - - - ASON -
Paspalum dilatatum Poiret*	- - - - ++ - - - - ++	JFMA - - - - - - D
Pennisetum setaceum (Forsskal) Chiov.*	- - - - - - - - - - ++	- - - - - JASON -
Pennisetum villosum R.Br. ex Fresen.*	- - - - - - - - - - -	FMAMJ JA SO - -
Pentaschistis thunbergii Stapf in Dyer*	- - - - - - - - - - ++	- - - - - - ASON -
Piptatherum miliaceum (L.) Cosson*	- - - - - - - - - - +	J - - - - - - - OND
Poa annua L.*	+ + + + + + + + + + +	- - - - - - ASO - -
Poa porphyroclados Nees in Lehm.	- - - - - - - - - - +	- - - - - - - - ON -
Polypogon monspeliensis (L.) Desf.*	- - - - - - - - - - +	- - - - MJJASON -
Rhynchelytrum repens (Willd.) C.E.Hubb.*	+ + + + - - - - + - ++	- - - - - JA - - - -

Sporobolus indicus (L.)R.Br.*	- - - - - - - - +++-	- - MAMJ - - S O N -
Stenotaphrum secundatum (Walter)Kuntze*	- + - - - + + + + - -	J F M A - - - - S O N D
Stipa compressa R.Br.	+ + + + + + + + + + +	- - - - - - - - S O N D
Stipa elegantissima Labill.	- - - - - - - - - - ++	J - - - - - - A S O N D
Stipa flavescens Labill.	+ + + + + + + + + + -	- - - - - - - A S - - -
Stipa semibarbata R.Br.	- + - - - - - - - - -	- - - - - - - A S O N -
Vulpia bromoides (L.)Gray*	+ + + + + + + + + + +	- - - - - - - - - O N D
Vulpia membranacea (L.)Dumort*	+ + + + + + + + + + +	- - - - - - - - - O N -
Vulpia myuros (L.)C.Gmelin*	+ + + + + + + + + + +	- - - - - J A S O N -
RESTIONACEAE		
Alexgeorgea arenicola Carlq.	+ + + + + + + + + + +	- - - A M - - - - - - -
Hypolaena exsulca R.Br.	- - - + + + + - + + + -	- - - - - - - - S O N D
Loxocarya fasciculata (R.Br.)Benth.	- - - + + + + - - - - -	- - - - - - - A S O N D
Loxocarya flexuosa (R.Br.)Benth.	+ + + + + + + + + + +	- - - - - - - - S O - -
Lyginia barbata R.Br.	+ + + + + + + + + + +	J F - - - - A S O N D
XANTHORRHOEACEAE		
Xanthorrhoea brunonis Endl. in Lehm.	- + + - - - + + - - - -	- - - - - - A S O N -
Xanthorrhoea preissii Endl. in Lehm.	+ + + + + + + + + + +	- - - - - - A S O N -